

**U.S. Department of the Interior
Bureau of Land Management**

Preliminary Environmental Assessment

**Jackies Butte Herd Management Area
Wild Horse Gather Plan**

U.S. Department of the Interior
Bureau of Land Management
Vale District/Malheur Field Office
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1.0 Purpose of and Need for Action

1.1 Background

With passage of the Wild Horse and Burro Act of 1971, Congress found that: “Wild horses are living symbols of the pioneer spirit of the West”. In addition, the Secretary was ordered to “manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands”. From the passage of the Act, through present day, the Bureau of Land Management (BLM) Vale District has endeavored to meet the requirements of this portion of the Act. The procedures and policies implemented to accomplish this mandate have been constantly evolving over the years.

Since the passage of the Wild Horse and Burro Act, management knowledge regarding horse population levels has increased. For example, wild horses are capable of increasing numbers 18 to 25% annually, resulting in the doubling of wild horse populations about every 4 years. National Awareness and attention for wild horse and burro issues, as well as the opportunities for wild horse viewing has also grown. These two factors have resulted in the BLM shifting program emphasis with wild horse and burro program goals expanded beyond simply establishing a “thriving natural ecological balance” (setting appropriate management level (AML)) for individual herds, to include achieving and maintaining viable, vigorous and stable populations.

This Environmental Assessment (EA) is a site-specific analysis of the potential impacts that could result with the implementation of the Proposed Action or alternatives to the Proposed Action. Preparation of an EA assists the BLM authorized officer to determine whether to prepare an Environmental Impact Statement (EIS) if significant impacts could result, or a Finding of No Significant Impact (FONSI) if no significant impacts are expected.

The Jackies Butte Herd Management Area (HMA) comprises about 65,211 acres of public land in the Dry Creek Pasture of the Jackies Butte Summer Allotment. The HMA is located in Malheur County, about 12 miles SE from Rome, Oregon (Map 1). The AML for wild horses within the HMA is 75-150 wild horses. The AML was established in Southern Malheur Management Framework Plan (MFP) (March, 1983) and was analyzed in the Southeast Oregon Resource Management Plan Final Environmental Impact Statement (SEORMP/FEIS, 2001). The HMA was last gathered in October 2007.

The BLM is proposing to gather about 210 wild horses and remove approximately 135 excess wild horses from within and outside the Jackies Butte HMA beginning in about August 2011. Seventy-five wild horses would remain in the HMA after the gather; of these, about 30 would be mares treated with fertility control and about 45 would be studs or geldings to adjust the sex ratio and slow population growth.

Based upon all information available at this time, the BLM has determined that approximately 135 excess wild horses exist within the HMA and need to be removed. This assessment is based on the following factors including, but not limited to:

- ☐ A direct count of 167 wild horses in April 2010 and a 25% increase in 2011 will total approximately 135 horses in excess of the AML lower limit.
- ☐ Use by wild horses is exceeding the forage allocated to their use by approximately 20 - 25% in 2011.
- ☐ Riparian monitoring completed in 2007, 2008, and 2010 documents severe utilization of forage within riparian habitats, and extensive trampling and trailing damage by wild horses.

1.2 Purpose of and Need for Action

The purpose and need for the proposed action is to meet the established objectives and goals of the SEORMP/ROD by maintaining the AML for the Jackies Butte HMA (SEORMP/ROD, 2002, 55-57). The purpose of the action is to gather and remove excess wild horses from the Jackies Butte HMA. This action is necessary to maintain a thriving natural ecological balance which protects public land resources from deterioration. During the most recent field monitoring in 2010, heavy to severe utilization of riparian and upland vegetation in and adjacent to perennial streams, springs, and reservoirs was observed. Resource damage is occurring in some areas of the HMA due to the current overpopulation of wild horses, and is likely to continue to occur as well as increase without immediate action.

This action is needed in order to achieve and maintain a population size within the established AML, protect rangeland resources from further deterioration associated with the current overpopulation, and restore a thriving natural ecological balance and multiple use relationship on public lands in the area consistent with the provisions of Section 3(b)(2) of the Wild Free-Roaming Horses and Burros Act (WFRHBA) of 1971.

During the most recent population inventory completed on April 20, 2010, a total of 167 wild horses were counted in or near the HMA. The SEORMP/ROD states minimum and maximum population levels of 75 and 150 horses in the HMA.

1.3 Land Use Plan Conformance

The Action Alternatives are tiered to the SEORMP/FEIS (2001, Chapter 3 242-246) and are in conformance with decisions made in the SEORMP/ROD (2002, 55-57). Objectives identified for wild horse herds in these documents include (1) maintaining and managing HMAs at AMLs to ensure a thriving natural ecological balance between wild horse populations, wildlife, livestock, vegetation resources, and other resource values, and (2) enhancing and perpetuating special and unique characteristics that distinguish the herd.

1.4 Relationship to Laws, Regulations, and Other Plans

Statutes and Regulations

This action is governed by the WFRHBA of 1971 (Public Law (PL) 92-195 as amended) and Title 43 Code of Federal Regulations (CFR) part 4700. Gathering and disposal of the wild horses would be in accordance with PL 92-195 as amended by PL 94-579 (Federal Land Policy and Management Act (FLPMA)) and PL 95-514 (Public Rangelands Improvement Act (PRIA)). Included are:

☐ **43 CFR 4710.3-1 Herd management areas.**

Herd management areas shall be established for the maintenance of wild horse and burro herds. In delineating each herd management area, the authorized officer shall consider the appropriate management level for the herd, the habitat requirements of the animals, the relationships with other uses of the public and adjacent private lands, and the constraints contained in 4710.4. The authorized officer shall prepare a herd management area plan, which may cover one or more herd management areas.

☐ **43 CFR 4710.4 Constraints on management.**

Management of wild horses and burros shall be undertaken with limiting the animals' distribution to herd areas. Management shall be at the minimum feasible level necessary to attain the objectives identified in approved land use plans and herd management area plans.

☐ **43 CFR 4720.1 Removal of excess animals from public lands.**

Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately.

☐ 43 CFR 4740.1 Use of motor vehicles or aircraft.

(a) Motor vehicles and aircraft may be used by the authorized officer in all phases of the administration of the Act, except that no motor vehicle or aircraft, other than helicopters, shall be used for the purpose of herding or chasing wild horses or burros for capture or destruction. All such use shall be conducted in a humane manner.

(b) Before using helicopters or motor vehicles in the management of wild horses or burros, the authorized officer shall conduct a public hearing in the area where such use is to be made.

1.5 Conformance with Rangeland Health Standards and Guidelines

As stated in 43 CFR 4180.2(b) - "Standards and guidelines must provide for conformance with the fundamentals of 43 CFR 4180.1." The Standards and Guidelines for Grazing Management for public lands have been reviewed by the Departmental Review Team who found that they comply with the requirements of the regulations. Gathering excess horses conforms to the standards and guides which were developed with full public participation and in consultation with Oregon/Washington's resource advisory councils and are in conformance with appropriate land use plans.

1.6 Decision to be Made

The authorized officer would determine whether to implement the proposed population control measures in order to achieve and maintain population size within the established AML and prevent the further deterioration of rangeland and riparian resources resulting from the current wild horse overpopulation. The authorized officer's decision would not set or adjust AML nor would it adjust livestock use, as these were set through previous decisions.

2.0 Proposed Action and Alternatives

2.1 Introduction

This section of the EA describes the Proposed Action and alternatives, including any that were considered but eliminated from detailed analysis. Three alternatives are considered in detail:

- Alternative 1: Proposed Action – Capture wild horses in order to remove 135 excess animals, apply PZP-22 fertility control vaccine to released mares, and establish a 60% male sex ratio.
- Alternative 2: Removal only (no fertility control or sex ratio adjustment).
- Alternative 3: Capture wild horses in order to remove 135 excess animals and apply PZP-22 fertility control vaccine to released mares.
- Alternative 4: Capture wild horses in order to remove 135 excess animals and establish a 60% male sex ratio.
- Alternative 5: No Action — Defer gather and removal.

The Proposed Action, Alternative 2, Alternative 3 and Alternative 4 were developed to respond to the identified resource issues and the Purpose and Need to differing degrees. The No Action Alternative would not achieve the identified Purpose and Need. However, it is analyzed in this EA to provide a basis for comparison with the other action alternatives, and to assess the effects of not conducting a gather at this time. The No Action Alternative is in violation of the WFRHBA which requires the BLM to immediately remove excess wild horses.

2.2 Description of Alternatives Considered in Detail

2.2.1 Management Actions Common to Alternatives 1-4

- ☐ The gather would begin in August 2011 and take about 10 days to complete. Several factors such as animal condition, herd health, weather conditions, or other considerations could result in adjustments in the schedule.
- ☐ Gather operations would be conducted in accordance with the Standard Operating Procedures (SOPs) described in the National Wild Horse and Burro Gather Contract (Appendix A). The primary gather (capture) methods would be the helicopter drive method with occasional helicopter assisted roping (from horseback).
- ☐ Trap sites and temporary holding facilities will be located in previously used sites or other disturbed areas whenever possible. Undisturbed areas identified as potential trap sites or holding facilities would be inventoried for cultural resources. If cultural resources are encountered, these locations would not be utilized unless they could be modified to avoid impacts to cultural resources.
- ☐ An Animal and Plant Inspection Service (APHIS) or other veterinarian may be on-site during the gather, as needed, to examine animals and make recommendations to BLM for care and treatment of wild horses.
- ☐ Decisions to humanely euthanize animals in field situations will be made in conformance with BLM policy (Washington Office Instruction Memorandum 2009-041). Current policy reference:
http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-041.html
- ☐ Data including sex and age distribution, condition class information (using the Henneke rating system), color, size and other information may also be recorded, along with the disposition of that animal (removed or released).
- ☐ Hair samples would be collected on about 25-100 animals to assess the genetic diversity of the herd. Samples would also be collected during future gathers as needed to determine whether BLM's management is maintaining acceptable genetic diversity (avoiding inbreeding depression).
- ☐ Excess animals would be transported to the Burns BLM corral facility where they will be prepared (freeze-marked, vaccinated and de-wormed) for adoption, sale (with limitations) or long-term holding.
- ☐ Temporary closure of roads within the HMA during gather operations may be instituted as necessary to allow for safe and effective operations to proceed.

2.2.2 Alternative 1. Proposed Action

The Proposed Action would gather about 210 and remove approximately 135 excess wild horses from within and outside the Jackies Butte HMA beginning in August 2011. Animals would be removed using a selective removal strategy. Selective removal criteria for the HMA include: (1) First Priority: Age Class – Four Years and Younger; (2) Second Priority: Age Class – Eleven to Nineteen Years (3) Third Priority: Age Class Five to Ten Years (4) Fourth Priority: Age Class Twenty Years and Older should not be removed from the HMA unless specific exceptions prevent them from being turned back to the range. Irrespective of their age class, all animals residing outside the HMA would be removed. Up to 75 of the captured wild horses would be released; of these, about 30 would be mares treated with fertility control and about 45 would be studs (or geldings) as follows:

- ☐ Mares would be treated with a two-year Porcine Zona Pellucida (PZP-22) or similar vaccine and released back to the range. Fertility control treatment would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (SOPs, Appendix B). Mares would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).

- ☐ Studs and geldings would be selected for release with the objective of establishing a 60% male sex ratio. Studs and geldings would be selected to maintain a diverse age structure, herd characteristics and body type (conformation).
- ☐ Post-gather, every effort would be made to return released horses to the same general area from which they were gathered.

2.2.3 Alternative 2: Removal Only

Alternative 2 would gather and remove about 135 excess wild horses from within and outside the Jackies Butte HMA beginning in about August 2011. Fertility control would not be applied and no changes to the herd's existing sex ratio would be made.

2.2.4 Alternative 3: Removal with Fertility Control

Alternative 3 would gather and remove about 135 excess wild horses from within and outside the Jackies Butte HMA beginning in about August 2011. Fertility control would be applied, but no changes to the herd's existing sex ratio would be made.

2.2.5 Alternative 4: Removal with Sex Ratio Adjustment

Alternative 4 would gather and remove about 135 excess wild horses from within and outside the Jackies Butte HMA beginning in about August 2011. The herd's existing sex ratio would be adjusted to establish a 60% male sex ratio. Fertility control would not be applied.

2.2.6 Alternative 5: No Action

Under the No Action Alternative, no gather would occur and no additional management actions would be undertaken to control the size of the wild horse population at this time.

2.3 Summary Comparison of Alternatives

Table 1: Summary Comparison of the Alternatives

Item	Alternative 1: Proposed Action	Alternative 2: Removal Only	Alternative 3: Removal and Fertility Control only	Alternative 4: Removal and Sex Ratio only	Alternative 5: No Action
<u>Impacts to Wild Horses</u>					
• Gather Number	210	210	210	210	0
• Removal Number	135	135	135	135	0
• Fertility Control - # Mares	30	0	37-38	0	0
• Post-Gather Sex Ratio	60/40	50/50	50/50	60/40	0
• Post-Gather Population Size	75	75	75	75	210

2.4 Alternatives Considered but Dismissed from Detailed Analysis

2.4.1 Use of Bait and/or Water Trapping

It would not be timely, cost-effective or practical to use bait and/or water trapping as the primary gather method because the number of water sources on both private and public lands within and outside the HMA would make it almost impossible to restrict wild horse access to the selected water trap sites. When water sources become limited, accessibility to these water sources is extremely remote, thereby, becoming an unpractical and economically unfeasible method of gathering horses. As a result, this alternative was dismissed from detailed analysis.

2.4.2 Remove or Reduce Livestock within the HMA

This alternative was not brought forward for detailed analysis because it is outside the scope of the analysis and it is contrary to previous decisions which allocated forage for livestock use. Such an action would not be in conformance with the existing land use plan, would be contrary to the BLM's multiple-use mission as outlined in the 1976 Federal Land Policy and Management Act (FLPMA), and would also be inconsistent with the WFRHBA which directs the Secretary to immediately remove excess wild horses.

2.4.3 Gather the HMA to the AML Upper Limit

This alternative was dismissed from detailed study because AML would be exceeded the foaling season following the gather in 2011. This would result in the need to follow up with another gather within one year, and increased stress to individual wild horses and the herd and continuing resource damage due to wild horse overpopulation in the interim. Nor would this alternative be consistent with the WFRHBA, which upon determination excess wild horses are present, requires their immediate removal.

2.4.4 Fertility Control Treatment Only (No Removal)

Population modeling was completed to analyze the potential impacts associated with conducting gathers about every 2-3 years over the next 20 year period to treat captured mares with fertility control. Under this alternative, no excess wild horses would be removed. While the average population growth would be reduced for the next couple of years, AML would not be achieved and the damage to the range associated with wild horse overpopulation would continue. This alternative would not meet the Purpose and Need for the Action, and would be contrary to the WFRHBA, and was dismissed from further study.

3.0 Affected Environment

This section of the EA briefly discusses the relevant components of the human environment which would be either affected or potentially affected by the Action Alternatives or No Action (Table 2). Direct impacts are those that result from the management actions while indirect impacts are those that exist once the management action has occurred.

3.1 General Description of the Affected Environment

The Jackies Butte HMA encompasses 65,211 acres of public land within Malheur County, Oregon (Map 1). The HMA is located in the Owyhee uplands with the Owyhee River approximately 5 miles away on the north and east sides of the HMA. The HMA is made up of the Dry Creek Native Pasture of the Jackies Butte Summer Allotment.

The topography of the HMA is relatively flat to gently undulating. Elevation varies from approximately 3,800 to 4,650 feet, with Jackies Butte being the highest prominent landmark. Precipitation averages 8 inches at lower elevations to 10 inches. Most of this precipitation comes during the winter and spring months in the form of snow, supplemented by localized thunderstorms during the summer months.

The primary native vegetation found in the allotment is big sagebrush, low sagebrush, bluebunch wheatgrass, and Sandberg bluegrass. Approximately 75% of this HMA has burned multiple times in 13 of the last 27 years. Due to the multitude of wildfires that have occurred, there has been an invasion of annual grasses and weeds in the uplands. Dry Creek and troughs along a pipeline are the main late season water sources within much of the HMA.

3.2 Description of Affected Resources/Issues

Table 2 lists the elements of the human environment subject to requirements in statute, regulation, or executive order which must be considered.

Table 2: Supplemental Authorities and Other Elements

Supplemental Authorities	Present	Affected	Rationale
ACECs	NO	NO	Not present.
Air Quality	YES	NO	The planning area is outside a non-attainment area. Implementation of the Proposed Action would result in small and temporary areas of disturbance.
Cultural Resources	YES	NO	To prevent any impacts to cultural resources, trap sites and temporary holding facilities would be located in previously disturbed areas. Cultural resource surveys would be conducted prior to using trap sites or holding facilities outside existing areas of disturbance.
Environmental Justice	NO	NO	Not present.
Fish Habitat	NO	NO	Not present.
Floodplains	NO	NO	Not present.
Forest and Rangelands	YES	YES	Discussed below.
Human Safety	YES	NO	Implementing the road closures identified in Section 2.2 would eliminate the impacts to human safety created by the proposed action.
Migratory Birds	NO	NO	Not present.
Native American Religious Concerns	NO	NO	There are no known Native American Religious Concerns regarding this project.
Noxious Weeds	NO	NO	To prevent the risk for spread, any noxious weeds or non-native invasive weeds would be avoided when establishing and accessing trap sites and holding facilities.
Prime or Unique Farmlands	NO	NO	Not present.
Riparian-Wetland Zones	YES	YES	Discussed below.
T&E Species	NO	NO	Not present.
Water Quality	YES	NO	Locate trap sites and temporary holding facilities away from any riparian areas to avoid impacts to water quality.
Waste (Hazardous or Solid)	NO	NO	Not present.
Wild and Scenic Rivers	NO	NO	Not present.
Wilderness and Wilderness Study Area	NO	NO	Not present.
Wilderness Characteristics	NO	NO	Not present.

In addition to the critical elements listed in Table 2, the following resources may be affected by the Action Alternatives and/or the No Action Alternative. The existing situation (affected environment) relative to these resources is described below.

3.2.1 Wild Horses

The area's designation as a herd management area was maintained in the SEORMP/FEIS ROD (2002). AML was established a population range of 75-150 wild horses in March 1983 in the Southern Malheur MFP. Forage is

allocated for 75 to 150 horses in the Jackies Butte HMA or 1800 animal unit months (AUMs). The HMA is the Dry Creek Pasture in the Jackies Butte Allotment. Inventory data show that horses have historically concentrated along Dry Creek throughout the spring, summer, and fall as water sources become scarce. The wild horses tend to concentrate their upland use on Jackies Butte.

The current estimated population of 184 wild horses in the Jackies Butte HMA is based on a direct count aerial population survey completed in April 2010. This number is broken down into 138 adults and 46 foals. Analysis of these data indicates an average annual growth rate of approximately 25 % since the last gather. The current population is about 1 ½ times over the AML lower limit.

Most of the wild horses observed in the HMA in 2010 were a Body Condition Score of 4-6 using the Henneke Body Condition Chart.

In the early 1970's, wild horses within the Jackies Butte HMA were very varied in color and characteristics. All colors of horses were observed with a few appaloosa colored. Adult horses in the HMA weigh an average of 950 to 1150 pounds and stand between 14.2 and 15.2 hands, with some stallions being slightly larger.

Stallions from other herds with similar characteristics have been periodically introduced into this HMA to help ensure genetic diversity. Baseline genetic diversity samples were taken in 2000. These samples indicate that genetic variability within the Jackies Butte HMA is low. The herd appears to be of mixed origins from North American breeds. In comparison with other Oregon herds, the Jackies Butte herd shows closest resemblance to the Coyote Lake/Alvord-Tule Springs and Paisley herds.

Due to the multitude of wildfires that have occurred in this HMA since the 1980's, wild horses have periodically been removed from the HMA to give the upland and riparian resources time to recover. The last removal of excess wild horses from the Jackies Butte HMA was completed in September 2007 when 148 horses were gathered and 122 were removed. Following recovery of the rangeland resources from the 2007 wildfire, 17 mares and 25 stallions (a total of 42 animals; 16 of the 42 released were not gathered in the 2007 Jackies Butte gather) were released. The un-gathered population was estimated at 33 animals for a total estimated post-gather population of 75 animals (about 45 males and 30 females or a 60/40 % male/female sex ratio).

Table 3: Wild Horse Gather History

HMA	Year	Captured	Removed	Released	Died/Euthanized
Jackies Butte	2007	148	122	26	0
Jackies Butte	2000	134	114	20	1
Jackies Butte	1994		68		
Jackies Butte	1991		78		
Jackies Butte	1988		79		
Jackies Butte	1983	186	186	0	0
Jackies Butte	1978	135	135	0	0
Jackies Butte	1976	136	134	0	2

3.2.2 Grazing Management

The Jackies Butte HMA is located within the Dry Creek Native pasture of the Jackies Butte Summer Allotment (#01101). The Dry Creek Native pasture is 27.8% of the total acreage within the allotment. There are a total of eight livestock operators authorized to graze cattle annually. The operators are authorized to utilize 14,274 Animal Unit Months (AUMs) of forage within the allotment each year between April 1 and October 31. An AUM is the amount of forage needed to sustain one cow, five sheep, or five goats for a month. The allotment is comprised of eleven pastures which are grazed by livestock using a deferred rotation grazing system. The

Jackies Butte Summer Allotment Management Plan (AMP) specifies that the three native pastures within the allotment are grazed on a three year rotation with one pasture being deferred until after seed dissemination of key grass species each year.

The BLM allocated forage for livestock use most recently in the 2002 record of decision for the Southeastern Oregon Resource Management Plan (SEORMP) (Jackies Butte Summer at E-155). The allocation will be revisited during activity planning associated with evaluation and assessment within Jackies Butte Geographic Management Area as described in the SEORMP.

Table 4 summarizes information about livestock grazing in Jackies Butte Summer Allotment and its relationship to wild horse management within the Jackies Butte HMA.

Table 4: Livestock Use Information

Allotment	Total Allotment Acres	% of Allotment in HMA	Number of Permittees	Number of Authorized Livestock	Authorized Season of Use	Authorized Livestock AUMs in Allotment	Average Actual Livestock Use (AUMs) (Past 5 years)
Jackies Butte Summer	208,536 PD 21,803 Pvt 379 State	27.8%	8	1,977 Cattle	4/1 – 10/31	14,274	Not currently available

3.2.3 Wildlife

The major big game species in the HMA is pronghorn antelope (*Antilocapra americana*). Approximately 20% of the HMA is utilized as winter range (November to March) by pronghorn. Mule deer inhabit approximately 10% of the HMA during the winter and approximately 2% of the HMA year-long. Birds are especially abundant with high species diversity. Swainson's, Ferruginous, and red-tailed hawks, as well as kestrels and northern harriers are common. Peregrine falcons, prairie falcons and sharp-shinned hawks have also been observed. Golden eagles are abundant year-long.

Other species (game and non game) which are known to occur in the HMA include chukar, Hungarian partridges, mourning doves, sage grouse, bobcats, badgers, and marmots.

3.2.4 Threatened and Endangered/Special Status Species

The kit fox (*Vulpes microtus*), a sensitive species in Oregon, inhabits localized areas of the more arid rangelands.

No threatened and endangered, or Bureau Sensitive plant species are known or suspected to occur within the HMA.

3.2.5 Vegetation

Shrub steppe vegetation communities in the area result from cold winters and hot dry summers. Historically, the project area supported a wide variety of sagebrush/perennial grassland cover types. Disturbance factors such as wild horse grazing use, historic domestic livestock grazing use, invasive plants and wildfire. Wildfire has been a regular occurrence over the past thirty five years converting large areas of shrub and perennial grass rangeland to cheatgrass (*Bromus tectorum*) and in some areas crested wheatgrass (*Agropyron cristatum*) as a result of seeding post fire. Outside of seedings and cheatgrass, the current vegetation in the HMA primarily consists of Wyoming big sagebrush (*Artemisia tridentate ssp. wyomingensis*), Sandberg bluegrass (*Poa sandbergii*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and Thurber's needlegrass (*Stipa thurberiana*).

Portions of Jackie's Butte area are infested with a conglomerate of mostly annual weeds or weedy species. The area has few of the more invasive noxious weeds and most of those are along vehicle travel routes. Perennial pepperweed (*Lepidium latifolium*), Russian knapweed (*Actoptilong repens*) and Scotch thistle (*Onapordum acanthium*) are known to occur within the area.

3.2.6 Soils

The soils found in the Jackies Butte Herd Management Area were surveyed and described in Oregon's Long Range Requirements for Water 1969, Appendix I-11, Owyhee Drainage Basin. They are mainly a combination of Unit 75 and S75 soils on slopes varying from three to twelve percent. The area also contains smaller amount of Units 76, S76 and 99.

CU 75 soils are loamy, shallow, very stony, well drained soils over basalt, rhyolite, or welded tuff. Unit 75 soils occur on gently undulating to rolling lava plateaus with some very steep faulted and dissected terrain. The soil profile consists of very stony silt loam, stony loam, and stony silt loam over bedrock at 15+ inches.

CU S75 soils are shallow, loamy, well drained, extremely stony on gently undulating to rolling plateaus of basalt, rhyolite, or welded tuff. The soil profile by depth consist of brownish gray gravelly loam, to light brown gravelly clay loam, to brown gravelly heavy clay loam, to silica cemented gravelly pan 6 to 20 inches thick over stratified loamy sand and gravel.

CU 76 soils are shallow, clayey, very stony, well drained soils over basalt, rhyolite, or welded tuff. They occur on gently undulating to rolling lava plateaus and some very steep faulted and dissected terrain. The soil profile consists of very stony, silt loam, stony silty clay, to stony and channery, heavy, silty clay loams over fractured bedrock at 18+ inches.

CU S76 soils are shallow, extremely stony, well drained soils over basalt, rhyolite, or welded tuff. They occur on gently undulating to steep plateaus. The soil profile by depth consist of stony loam, extremely stony clay loam, extremely stony clay over fractured bedrock at 11+ inches.

Unit 99 is a miscellaneous land unit consisting of recent lava flows. These flows are generally on low slopes, but do have extremely irregular, rough surfaces. There do tend to be small pockets of soil development on which there is some vegetation.

3.2.7 Riparian Areas and Water Resources

Riparian vegetation is extremely limited in scope throughout the area, existing primarily at Hardin Springs, Dry Creek, and a few reservoirs. Riparian environments are even more limited in areas where gathers are likely to occur. While not extensive, riparian zones are an important resource for wildlife, wild horses, and livestock. Because of the demands on riparian areas, management considerations have focused on protecting these areas. Maintaining AML of wild horse herds is important to keeping utilization at acceptable levels and preserving riparian habitat.

4.0 Environmental Consequences

4.1 Introduction

This section of the EA documents the potential environmental impacts which would be expected with implementation of the Action Alternatives (Alternatives 1-4) and/or the No Action Alternative. These include

the direct impacts (those that result from the management actions) and indirect impacts (those that exist once the management action has occurred).

4.2 Predicted Effects of Alternatives

The direct and indirect impacts to these resources which would be expected to result with implementation of the Action Alternatives or No Action Alternative are discussed in detail below.

4.2.1 Wild Horses

Results of Win Equus Population Modeling

The Alternatives were modeled using Version 3.2 of the Win Equus population model (Jenkins, 2000). The purpose of the modeling was to analyze and compare the effects of the Action Alternatives on population size, average population growth rate, and average removal number. Another objective of the modeling was to identify if any of the alternatives “crash” the population or cause extremely low population numbers or growth rates.

Minimum population levels and growth rates were found to be within reasonable levels and adverse impacts to the population are not likely. There was not a significant difference in the Action Alternatives for the number average number of horses removed over the next 11 years. See Appendix C for additional detail.

Impacts Common to Action Alternatives (1-4)

Over the past 35 years, various impacts to wild horses as a result of gather activities have been observed. Under the Proposed Action, impacts to wild horses would be both direct and indirect, occurring to both individual horses and the population as a whole.

The BLM has been conducting wild horse gathers since the mid-1970s. During this time, methods and procedures have been identified and refined to minimize stress and impacts to wild horses during gather implementation. The SOPs (Appendix A) would be implemented to ensure a safe and humane gather occurs and would minimize potential stress and injury to wild horses. In addition to implementation of the SOPs, BLM would temporarily close roads in the HMA where gather operations were occurring to assist in ensuring the safety of the public, BLM contractors, BLM personnel, and wild horses.

In any given gather, gather-related mortality averages about one half of one percent (0.5%), which is very low when handling wild animals. Approximately another six-tenths of one percent (0.6%) of the captured animals could be humanely euthanized due to pre-existing conditions and in accordance with BLM policy (IM-2009-041). These data affirm that the use of helicopters and motorized vehicles has proven to be a safe, humane, effective, and practical means for the gather and removal of excess wild horses (and burros) from the public lands. The BLM also avoids gathering wild horses by helicopter during the 6 weeks prior to and following the peak foaling season (i.e., March 1 through June 30).

Individual, direct impacts to wild horses include the handling stress associated with the roundup, capture, sorting, handling, and transportation of the animals. The intensity of these impacts varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. When being herded to trap site corrals by the helicopter, injuries sustained by wild horses may include bruises, scrapes, or cuts to feet, legs, face, or body from rocks, brush or tree limbs. Rarely, wild horses may encounter barbed wire fences and may receive wire cuts. These injuries are very rarely fatal and are treated on-site until a veterinarian can examine the animal and determine if additional treatment is indicated.

Other injuries may occur after a horse has been captured and is either within the trap site corral, the temporary holding corral, during transport between facilities, or during sorting and handling. Occasionally, horses may sustain a spinal injury or a fractured limb but based on prior gather statistics, serious injuries requiring humane euthanasia occur in less than 1 horse per every 100 captured.

To minimize the potential for injuries from fighting, the animals are transported from the trap site to the temporary (or short-term) holding facility where they are sorted as quickly and safely as possible, then moved into large holding pens where they are provided with hay and water.

Indirect individual impacts are those which occur to individual wild horses after the initial event. These may include miscarriages in mares, increased social displacement, and conflict in studs. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief skirmishes between older studs which ends when one stud retreats. Injuries typically involve a bite or kick with bruises which do not break the skin. Like direct individual impacts, the frequency of these impacts varies with the population and the individual. Observations following capture indicate the rate of miscarriage varies, but can occur in about 1 to 5% of the captured mares, particularly if the mares are in very thin body condition or in poor health.

During a summer gather, foals are smaller than during gathers conducted during the winter months. Water requirements are greater than in the winter due to the heat. If forage or water is limiting, animals may be traveling long distances between water forage, and may become more easily dehydrated. To minimize the potential for distress during summer gathers, capture operations are often limited to the early morning hours when temperatures are cooler. The distance animals must travel to the trap is also shortened to minimize the potential for stress. The BLM and the gather contractor also make sure there is plenty of clean water for the animals to drink once they have been captured. A supply of electrolytes is also kept on hand to apply to the drinking water if necessary. Electrolytes help to replace the body fluids that may be lost during capture and handling.

A few foals may be orphaned during a gather. This can occur if the mare rejects the foal, the foal becomes separated from its mother and cannot be matched up following sorting, the mare dies or must be humanely euthanized during the gather, the foal is ill or weak and needs immediate care that requires removal from the mother, or the mother does not produce enough milk to support the foal. On occasion, foals are gathered that were previously orphaned on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor, unthrifty condition. Every effort is made to provide appropriate care to orphan foals. Veterinarians may administer electrolyte solutions or orphan foals may be fed milk replacer as needed to support their nutritional needs. Orphan foals may be placed in a foster home in order to receive additional care. Despite these efforts, some orphan foals may die or be humanely euthanized as an act of mercy if the prognosis for survival is very poor.

Wild horses not captured may be temporarily disturbed and moved into another area during the gather operation. With the exception of changes to herd demographics from removals, direct population impacts have proven to be temporary in nature with most, if not all, impacts disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release, except for a heightened awareness of human presence.

It is not expected that genetic health would be negatively impacted by the Proposed Action. The AML range of 75-150 should provide for acceptable genetic diversity.

By maintaining wild horse population size within the AML, there would be a lower density of wild horses across the HMA, reducing competition for resources and allowing wild horses to utilize their preferred habitat. Maintaining population size within the established AML would be expected to improve forage quantity and quality and promote healthy, self-sustaining populations of wild horses in a thriving natural ecological balance and multiple use relationship on the public lands in the area. Deterioration of the range associated with wild horse overpopulation would be avoided. Managing wild horse populations in balance with the available habitat and other multiple uses would lessen the potential for individual animals or the herd to be affected by drought, and would avoid or minimize the need for emergency gathers, which would reduce stress to the animals and increase the success of these herds over the long-term.

Transport, Short Term Holding, and Adoption (or Sale) Preparation

About 135 excess horses would be removed. Animals would be transported from the capture/temporary holding corrals to the designated BLM short-term holding corral facility(s) according to SOPs (Appendix A). During transport, potential impacts to individual horses can include stress, as well as slipping, falling, kicking, biting, or being stepped on by another animal. Unless wild horses are in extremely poor condition, it is rare for an animal to be seriously injured or die during transport.

Upon arrival at the short term holding facility, most wild horses begin to eat and drink immediately and adjust rapidly to their new situation. Recently captured wild horses, generally mares, in very thin condition may have difficulty transitioning to feed. Some of these animals are in such poor condition that it is unlikely they would have survived if left on the range. Similarly, some mares may lose their pregnancies. Every effort is taken to help the mare make a quiet, low stress transition to captivity and domestic feed to minimize the risk of miscarriage or death.

After recently captured wild horses have transitioned to their new environment, they are prepared for adoption or sale. During the preparation process, potential impacts to wild horses are similar to those that can occur during handling and transportation. Serious injuries and deaths from injuries during the preparation process are rare, but can occur.

At short-term corral facilities, a minimum of 700 square feet is provided per animal. Mortality at short-term holding facilities averages approximately 5% per year (GAO-09-77, page 51), and includes animals euthanized due to a pre-existing condition; animals in extremely poor condition; animals that are injured and would not recover; animals which are unable to transition to feed; and animals which are seriously injured or accidentally die during sorting, handling, or preparation.

From there, they would be made available for adoption or sale to qualified individuals or to long-term holding (grassland) pastures.

Adoption or Sale with Limitations, and Long Term Holding

Other indirect impacts include transportation to adoptions, sales, or long-term pastures (LTP). Adoptions are conducted in accordance with 43 CFR 5750. Sales of wild horses are conducted in accordance with Bureau policy. The BLM has maintained long-term pastures (LTP) in the Midwest for over 20 years. Potential impacts to wild horses from transport to adoption, sale or LTP are similar to those previously described.

LTPs are designed to provide excess wild horses with humane, life-long care in a natural setting off the public rangelands. Handling by humans is minimized to the extent possible although regular on-the-ground observation and weekly counts of the wild horses to ascertain their numbers, well-being, and safety are conducted.

Impacts of Alternative 1 (Proposed Action)

PZP application would be done according to SOPs (Appendix B). When injected, PZP (antigen) causes the mare's immune system to produce antibodies and these antibodies bind to the mare's eggs, and effectively block sperm binding and fertilization (Zoo Montana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and environment, and can easily be administered in the field. In addition, among mares, PZP contraception appears to be completely reversible.

The highest success for fertility control has been obtained when applied during the timeframe of November through February. This gather would require PZP application outside the window for highest success. Below is the efficacy for the application of the two-year PZP vaccine:

	Year 1	Year 2	Year 3	Year 4
Summer Application	Normal	80%	65%	50%
Winter Application	Normal	94%	82%	68%

One-time application at the capture site would not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions, should the mare already be pregnant when vaccinated (Kirkpatrick, 1995). The vaccine has also proven to have no apparent effect on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner, 1997). Mares would foal normally in 2012 (Year 1).

Mares receiving the vaccine would experience slightly increased stress levels associated with handling while being vaccinated and freeze-marked. Serious injection site reactions associated with fertility control treatments are rare in treated mares. Any direct impacts associated with fertility control, such as swelling or local reactions at the injection site, would be minor in nature and of short duration. Most mares recover quickly once released back to the HMA, and none are expected to have long term consequences from the fertility control injections.

Under Alternative 1, some captured wild horses would be released back to the range to achieve a post-gather sex ratio of 60% studs or geldings and 40% mares. Under this alternative, band size would be expected to decrease, competition for mares would be expected to increase, recruitment age for reproduction among mares would be expected to decline, and size and number of bachelor bands would be expected to increase. These effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges. Modification of sex ratios for a post-gather population favoring studs or geldings would further reduce growth rates in combination with fertility control.

Impacts of Alternative 2 (Removal Only)

Implementation of Alternative 2 would result in capturing fewer wild horses than would be captured in Alternative 1. Alternative 2 would not involve fertility control; mares would not undergo the additional stress of receiving fertility control injections or freeze-marking and would foal at normal rates until the next gather is conducted. The post-gather sex ratio would be about 50:50 mares to studs. This would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis within the herd, larger band sizes, and individual mares would likely begin actively producing at a slightly older age.

Impacts of Alternative 3 (Removal and Fertility Control)

Alternative 3 would involve fertility control, therefore, impacts related to fertility control would be the same as Alternative 1. The post-gather sex ratio would be about 50:50 mares to studs. This would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis within the herd, larger band sizes, and individual mares would likely begin actively producing at a slightly older age.

Impacts of Alternative 4 (Removal and Sex Ratio Adjustment)

Alternative 2 would not involve fertility control, therefore, impacts related to fertility control would not apply. The post-gather sex ratio would be about 60:40 studs or geldings to mares. These impacts would be similar to those discussed in Alternative 1.

Impacts of Alternative 5 (No Action)

Under the No Action Alternative, there would be no active management to control the population size within the established AML at this time. In the absence of a gather, wild horse populations would continue to grow at an average rate of 25% per year. Without a gather and removal now, the population would grow to 449 in four years based on the average annual growth rate.

Use by wild horses would continue to exceed the amount of forage allocated for their use. Competition between wildlife, livestock and wild horses for limited forage and water resources would continue. Damage to rangeland resources would continue or increase. Over time, the potential risks to the health of individual horses would increase, and the need for emergency removals to prevent their death from starvation or thirst would also increase. Over the long-term, the health and sustainability of the wild horse population is dependent upon achieving a thriving natural ecological balance and sustaining healthy rangelands. Allowing wild horses to die of dehydration or starvation would be inhumane and would be contrary to the WFRHBA which requires that excess wild horses be immediately removed. Allowing rangeland damage to continue to result from wild horse overpopulation would also be contrary to the WFRHBA which requires the BLM to “protect the range from the deterioration associated with overpopulation”, “remove excess animals from the range so as to achieve appropriate management levels”, and “to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.”

4.2.2 Grazing Management

Direct impacts to livestock and management practices from activity associated with gathering, including disturbance resulting from moving horses with a helicopter, would be minimal within Dry Creek Native Pasture during 2011. Removal of horses from outside the HMA may result in minimal livestock disturbance while herding wild horses into Dry Creek Native Pasture.

Impacts Common to Action Alternatives (1-4)

Removal of approximately 135 head of horses from the HMA would reduce competition between livestock and wild horses for the available forage and water resources. Indirect impacts would include an increase in the quality and quantity of the available forage in the short-term. Over the longer-term, improved vegetation resources would lead to a thriving natural ecological condition.

Impacts of Alternative 1 (Removal, Sex Ratio Adjustment, and Fertility Control) – Impacts of removal would benefit livestock management opportunities due to limitations for forage and water resources as identified above. Those benefits would be extended by limiting future growth of the horse herd through sex ratio adjustments and fertility control.

Impacts of Alternative 2 (Removal Only) – Impacts would not be as beneficial as in Alternative 1 and 3 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures or adjusting the sex ratio of the herd.

Impacts of Alternative 3 (Removal and Fertility Control) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not adjusting the sex ratio of the herd.

Impacts of Alternative 4 (Removal and Sex Ratio Adjustment) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures.

Impacts of Alternative 5 (No Action)

The current wild horse population is 20% above their forage allocation. Heavy to severe utilization is occurring in areas where wild horses concentrate. The indirect impacts of No Action (Defer Gather and Removal) would be continued damage to the range, continuing competition between livestock, wild horses and wildlife for the available forage and water, reduced quantity and quality of forage and water, and undue hardship on the livestock operators who would continue to be unable to fully use the forage resource they are authorized to use.

4.2.3 Wildlife

Impacts Common to Action Alternatives (1-4)

Wildlife populations in the areas from which horses are gathered by the helicopter would be forced to seek cover in areas adjacent to the flight path, trap sites, and other areas of human activity associated with the gather operation. This would not cause them to abandon their normal habitat areas as the disturbance would be of short duration (8 to 10 days) and very localized. Competition for water and/or forage that might exist between wild horses and wildlife would be reduced.

Impacts of Alternative 2 (Removal Only) – Impacts would not be as beneficial as in Alternative 1 and 3 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures or adjusting the sex ratio of the herd.

Impacts of Alternative 3 (Removal and Fertility Control) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not adjusting the sex ratio of the herd.

Impacts of Alternative 4 (Removal and Sex Ratio Adjustment) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures.

Impacts of Alternative 5 (No Action)

Wildlife populations in the HMA would be forced to compete more for limited water and forage, which would most likely alter use patterns. Habitat degradation would decrease wildlife populations and wildlife use in the HMA.

4.2.4 Threatened and Endangered/Special Status Species

Impacts Common to Action Alternatives (1-4)

Reducing the number of wild horses in the HMA will lead to increased herbaceous cover as well as maintained or improved vegetative conditions. This will benefit sage grouse and other special status species identified in the affected environment by limiting habitat fragmentation and providing increased forage and vegetative structure required by the various life processes of these species. Habitat quality and quantity would be increased reducing potential threats to the species viability within the Three Fingers HMA.

Impacts of Alternative 2 (Removal Only) – Impacts would not be as beneficial as in Alternative 1 and 3 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures or adjusting the sex ratio of the herd.

Impacts of Alternative 3 (Removal and Fertility Control) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not adjusting the sex ratio of the herd.

Impacts of Alternative 4 (Removal and Sex Ratio Adjustment) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures.

Impacts of Alternative 5 (No Action)

Special status species would be affected by increased horse numbers through degradation of habitat conditions which could reduce productivity of these species. Riparian vegetation browsing and trampling springs, primarily due to wild horse use, would further degrade habitat conditions for wildlife.

4.2.5 Vegetation

Impacts Common to Action Alternatives (1-4)

In the immediate vicinity of the catch pens or corrals and the loading chute, short-term disturbance would occur. The soil would be compacted and vegetation would be trampled during panel installation by personnel and vehicles and severely trampled in the catch pen area by wild horses, domestic horses, and the wranglers. It is estimated and anticipated that 1 to 3 years would be required for native vegetation to become reestablished or regain vigor under average conditions with no reclamation. The total area of impact per trap would be approximately 2 acres, with less than ¼ acre severely disturbed. Less than one AUM of livestock forage would be temporarily lost for one grazing season at each trap site used.

There would be a positive impact to the upland and riparian vegetation by reducing the total numbers of wild horses grazing year long within the HMA. Lessened utilization would allow critical growth period rest for key cool season grasses. The composition of vegetation would change to a higher percentage of desirable plants, soil cover would increase and the potential for erosion would decrease.

Impacts of Alternative 1 (Removal, Sex Ratio Adjustment, and Fertility Control) – Impacts of removal would benefit vegetation resources as identified above. Those benefits would be extended by limiting future growth of the horse herd through sex ratio adjustments and fertility control.

Impacts of Alternative 2 (Removal Only) – Impacts would not be as beneficial as in Alternative 1 and 3 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures or adjusting the sex ratio of the herd.

Impacts of Alternative 3 (Removal and Fertility Control) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not adjusting the sex ratio of the herd.

Impacts of Alternative 4 (Removal and Sex Ratio Adjustment) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures.

Impacts of Alternative 5 (No Action)

Areas which are presently over utilized, such as areas adjacent to water sources, would continue to be used excessively. The area of over utilization would continue to increase in both size and degree. The composition of vegetation would change to a higher percentage of undesirable plants, soil cover would be reduced, and the potential for erosion would increase.

4.2.6 Soils

Impacts Common to Action Alternatives (1-4)

Soil loss and compaction would be expected to decrease in those areas near water sources where horses are forced to concentrate. Lower populations of horses would result in less hoof traffic, thereby decreasing negative impacts to soil micro biotic crusts.

Soil would be displaced and/or compacted on approximately two acres at each site in the construction of the trap, use of the access routes, and in the round-up and loading of the wild horses. The area of severe surface disturbance is normally less than 2,000 square feet. Minimal surface wind and water erosion is expected on these areas during the vegetative rehabilitation period (approximately 1 to 3 years).

Impacts of Alternative 2 (Removal Only) – Impacts would not be as beneficial as in Alternative 1 and 3 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures or adjusting the sex ratio of the herd.

Impacts of Alternative 3 (Removal and Fertility Control) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not adjusting the sex ratio of the herd.

Impacts of Alternative 4 (Removal and Sex Ratio Adjustment) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures.

Impacts of Alternative 5 (No Action)

Soil loss and compaction would be expected to increase in those areas near water sources where horses are forced to concentrate. Increased wild horse numbers on uplands and riparian areas would negatively impact soil surface features and would increase erosion in the HMA.

4.2.7 Riparian Areas and Water Resources

Impacts Common to Action Alternatives (1-4)

The proposed action would limit the intensity of use at water sources and surrounding uplands. Regulating the number of wild horses in the HMA would reduce use near water sources and riparian areas by minimizing degradation to these resources.

The trap sites would not be located adjacent to any surface water sources or riparian areas, therefore, there would be no anticipated direct impact due to the gather.

Impacts of Alternative 2 (Removal Only) – Impacts would not be as beneficial as in Alternative 1 and 3 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures or adjusting the sex ratio of the herd.

Impacts of Alternative 3 (Removal and Fertility Control) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not adjusting the sex ratio of the herd.

Impacts of Alternative 4 (Removal and Sex Ratio Adjustment) - Impacts would not be as beneficial as in Alternative 1 due to the wild horse population increasing at a faster rate as a result of not conducting fertility control measures.

Impacts of Alternative 5 (No Action)

Increasing numbers of wild horses in the HMA would result in greater use and degradation of riparian areas. This would result in an unacceptable decline in water quality through increased sedimentation and water temperatures. Riparian area vegetation would be degraded as additional horse use would decrease vegetation recruitment, reproduction, and survivability. In addition, riparian vegetation community types and distribution would be changed, root density lessened, and canopy cover reduced. This would lead to reduced stream channel and spring/seep dynamics and further deterioration of these systems.

4.3 Cumulative Effects for All Alternatives

The NEPA regulations define cumulative impacts as impacts on the environment that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The cumulative impacts study area (CSA) for the purposes of evaluating cumulative impacts is the Jackies Butte HMA.

According to the 1994 BLM *Guidelines for Assessing and Documenting Cumulative Impacts*, the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance to be analyzed are maintaining rangeland health and proper management of wild horses.

Past and Present Actions

4.3.1 Wild Horses

The Southern Malheur MFP (1983) designated the Jackies Butte HMA for the long-term management of wild horses. Currently, management and AML of wild horses within the HMA conforms to decisions in the SEORMP/ROD (2002).

The actions which have influenced today's wild horse population are primarily wild horse gathers, which have resulted in the capture of some 964 wild horses, the removal of 916 excess horses, and release of 62 horses back into the HMA (see Table 3, Section 3.2.2).

4.3.2 Vegetation

Through land use planning decisions, the BLM has allocated the available forage to livestock, wildlife and domestic livestock. Additional benefits provided by healthy vegetation resources have resulted in land use planning decision to limit unacceptable impacts to vegetation.

While the present livestock grazing system and efforts to manage the wild horse population within AML has reduced past historic impacts, monitoring indicates that the current overpopulation of wild horses is continuing to contribute to areas of heavy vegetation utilization, trailing and trampling damage and is preventing the BLM from managing for rangeland health and a thriving natural ecological balance and multiple use relationship on the public lands in the area.

4.4 Reasonably Foreseeable Future Actions

4.4.1 Wild Horses

Over the next 10-20 year period, reasonably foreseeable future actions include gathers about every 4 years to remove excess wild horses in order to manage population size within the established AML range. The excess animals removed would be transported to short-term corral facilities where they would be prepared for adoption, sale (with limitations), or LTPs. Any future wild horse management would be analyzed in appropriate environmental documents following site-specific planning with public involvement.

4.4.2 Vegetation

Continuing to graze livestock in a manner consistent with grazing permit terms and conditions would be expected to achieve or make significant progress towards achieving rangeland health standards and guidelines. Livestock grazing is expected to continue at similar stocking rates and utilization of the available vegetation (forage) would also be expected to continue at similar levels, with appropriate corrective actions implemented if current livestock management practices are found to contribute to not meeting rangeland health standards or guidelines. Similarly, appropriate actions would be implemented to adjust livestock grazing authorization terms and conditions, including livestock numbers and seasons of use, in the event that current livestock grazing practices are found to contribute to not meeting resource management objectives.

4.5 Summary of Past, Present, and Reasonably Foreseeable Future Actions

Impacts Common to Action Alternatives (1-4)

The cumulative effects associated with the capture and removal of excess wild horses includes gather-related mortality of less than 1% of the captured animals, about 5% per year associated with transportation, short term holding, adoption or sale with limitations and about 8% per year associated with long-term holding. This compares with natural mortality on the range ranging from about 5-8% per year for foals (animals under age 1), about 5% per year for horses ages 1-15, and 5-100% for animals age 16 and older (Stephen Jenkins, 1996, Garrott and Taylor, 1990). In situations where forage and/or water are limited, mortality rates increase, with the greatest impact to young foals, nursing mares and older horses.

The other cumulative effects which would be expected when incrementally adding either of the Action Alternatives to the CSA would include continued improvement of upland vegetation conditions, which would in turn benefit permitted livestock, native wildlife, and wild horse population as forage (habitat) quality and quantity is improved over the current level. Benefits from a reduced wild horse population would include fewer animals competing for limited forage and water resources. Cumulatively, there should be more stable wild horse populations, healthier rangelands, healthier wild horses, and fewer multiple use conflicts in the area over the short and long-term. Over the next 15-20 years, continuing to manage wild horses within the established AML range would achieve a thriving natural ecological balance and multiple use relationship on public lands in the area.

Impacts of Alternative 1 (Proposed Action)

Application of fertility control and adjustment in sex ratios to favor males should slow population growth and result in fewer gathers and less frequent disturbance to individual wild horses and the herd's social structure. However, return of wild horses back into the HMA could lead to decreased ability to effectively gather horses in the future as released horses learn to evade the helicopter.

Impacts of Alternative 2 (Removal Only)

Removal only of wild horses has been the predominant method of population control used in the past on this herd. This alternative will result in more frequent gathers and disturbance to the wild horses than Alternatives 1, 3 or 4. As wild horses are gathered and sorted through for selecting which animals to release back into the HMA, there could be a decrease in the ability to effectively gather horses in the future as released horses learn to evade the helicopter.

Impacts of Alternative 3 (Removal and Fertility Control)

Application of fertility control should slow population growth and result in fewer gathers and less frequent disturbance to individual wild horses and the herd's social structure. However, return of wild horses back into the HMA could lead to decreased ability to effectively gather horses in the future as released horses learn to evade the helicopter.

Impacts of Alternative 4 (Removal and Sex Ratio Adjustment)

Adjusting the sex ratio of the herd should slightly slow population growth and result in fewer gathers and less frequent disturbance to individual wild horses and the herd's social structure. However, return of wild horses back into the HMA could lead to decreased ability to effectively gather horses in the future as released horses learn to evade the helicopter.

Impacts of Alternative 5 (No Action)

Under the No Action Alternative, the wild horse population could exceed the low end of AML by approximately four or five times in four years. Movement outside the HMA would be expected as greater numbers of horses search for food and water for survival, thus impacting larger areas of public lands. Heavy to excessive utilization of the available forage would be expected and the water available for use could become increasingly limited. Eventually, ecological plant communities would be damaged to the extent that they are no longer sustainable and the wild horse population would be expected to crash.

Emergency removals could be expected under this alternative in order to prevent individual animals from suffering or death as a result of insufficient forage and water. These emergency removals could occur as early as FY 2012. During emergency conditions, competition for the available forage and water increases. This competition generally impacts the oldest and youngest horses as well as lactating mares first. These groups would experience substantial weight loss and diminished health, which could lead to their prolonged suffering and eventual death. If emergency actions are not taken, the overall population could be affected by severely skewed sex ratios towards stallions as they are generally the strongest and healthiest portion of the population. An altered age structure would also be expected.

Cumulative impacts would result in foregoing the opportunity to improve rangeland health and to properly manage wild horses in balance with the available forage and water and other multiple uses. Attainment of site-specific vegetation management objectives and Standards for Rangeland Health would not be achieved. AML would not be achieved and the opportunity to collect the scientific data necessary to re-evaluate AML levels, in relationship to rangeland health standards, would be foregone.

5.0 Monitoring and Mitigation Measures

The BLM Contracting Officer's Representative (COR) and Project Inspectors (PIs) assigned to the gather would be responsible for ensuring contract personnel abide by the contract specifications and the SOPs (Appendix A). Ongoing monitoring of forage condition and utilization, water availability, aerial population surveys, rangeland resources health, and animal health would continue.

Fertility control monitoring would be conducted in accordance with the SOPs (Appendix B). Monitoring the herd's social behavior would be incorporated into routine monitoring. The objective of this additional monitoring would be to determine if additional studs form bachelor bands or are more aggressive with breeding bands for the forage and water present.

If genetic monitoring indicates a loss of genetic diversity, then mares would be introduced into the Jackies Butte HMA from an HMA with similar characteristics.

6.0 List of Preparers

The following list identifies the interdisciplinary team member's area of responsibility:

- Shaney Rockefeller - Wild Horse and Burro Specialist
- Aimee Huff - Rangeland Management Specialist
- Garth Ross - Wildlife Biologist, Fisheries
- Diane Pritchard – Archaeologist
- Lynne Silva, Weed Specialist
- Linus Meyer – Hydrologist, Soil Scientist, Riparian Management
- Gillian Wigglesworth – Botanist, ACEC/RNA Coordinator
- Kari Frederick – Recreation, VRM, Wilderness Characteristics
- Eric Mayes - Planning and Environmental Coordinator
- Carolyn Freeborn – Field Manager, Jordan Resource Area

7.0 Consultation and Coordination

Public hearing(s) are held as a single state-wide hearing at the Burns District Office regarding the use of helicopters and motorized vehicles to capture wild horses (or burros). During the hearing(s), the public is given the opportunity to present new information and to voice any concerns or opinions regarding the use of these methods to capture wild horses (or burros). The Burns BLM Office held a hearing on April 21, 2010. No members of the public attended the meeting. BLM reviewed its Standard Operating Procedures in response to the views and issues expressed at the hearing and determined that no changes to the SOPs were warranted.

A notice of the action was sent to the groups and individuals on the District Mailing List including wild horse and burro interest groups.

Livestock operators in the Jackies Butte HMA have been consulted.

Coordination has been conducted with Oregon Department of Fish and Wildlife.

8.0 References

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9.0 Appendices

Appendix A – Standard Operating Procedures (Gather Operation)

Appendix B – Standard Operating Procedures (Fertility Control Application and Monitoring)

Appendix C – Win Equus Population Modeling Results

Map 1 – Jackies Butte HMA

APPENDIX A

Standard Operating Procedures (SOPs) for Wild Horse (or Burro) Gathers

Gathers are conducted by utilizing contractors from the Wild Horse (or Burros) Gathers-Western States Contract or BLM personnel. The following procedures for gathering and handling wild horses apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations will be conducted in conformance with the *Wild Horse Aviation Management Handbook* (January 2009).

Prior to any gathering operation, the BLM will provide for a pre-capture evaluation of existing conditions in the gather area(s). The evaluation will include animal conditions, prevailing temperatures, drought conditions, soil conditions, road conditions, and a topographic map with wilderness boundaries, the location of fences, other physical barriers, and acceptable trap locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a veterinarian during operations. If it is determined that a large number of animals may need to be euthanized or capture operations could be facilitated by a veterinarian, these services would be arranged before the capture would proceed. The contractor will be apprised of all conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected.

Trap sites and temporary holding sites will be located to reduce the likelihood of injury and stress to the animals, and to minimize potential damage to the natural resources of the area. These sites would be located on or near existing roads whenever possible.

The primary capture methods used in the performance of gather operations include:

1. Helicopter Drive Trapping. This capture method involves utilizing a helicopter to herd wild horses into a temporary trap.
2. Helicopter Assisted Roping. This capture method involves utilizing a helicopter to herd wild horses or burros to ropers.
3. Bait Trapping. This capture method involves utilizing bait (e.g., water or feed) to lure wild horses into a temporary trap.

The following procedures and stipulations will be followed to ensure the welfare, safety and humane treatment of wild horses in accordance with the provisions of 43 CFR 4700.

A. Capture Methods used in the Performance of Gather Contract Operations

1. The primary concern of the contractor is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following:

All trap and holding facilities locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. The Contractor may also be required to change or move trap locations as determined by the COR/PI. All traps and holding facilities not located on public land must have prior written approval of the landowner.

2. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other

factors. Under normal circumstances this travel should not exceed 10 miles and may be much less dependent on existing conditions (i.e. ground conditions, animal health, extreme temperature (high and low)).

3. All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:

- a. Traps and holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design.
- b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered, plywood, metal without holes larger than 2"x4".
- c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the COR/PI.
- d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, plastic snow fence, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses
- e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking or sliding gates.

4. No modification of existing fences will be made without authorization from the COR/PI. The Contractor shall be responsible for restoration of any fence modification which he has made.

5. When dust conditions occur within or adjacent to the trap or holding facility, the Contractor shall be required to wet down the ground with water.

6. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, estrays or other animals the COR determines need to be housed in a separate pen from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government will require that animals be restrained for the purpose of determining an animal's age, sex, or other necessary procedures. In these instances, a portable restraining chute may be necessary and will be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals if the specific gathering requires that animals be released back into the capture area(s). In areas requiring one or more satellite traps, and where a centralized holding facility is utilized, the contractor may be required

to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the COR.

7. The Contractor shall provide animals held in the traps and/or holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. The contractor will supply certified weed free hay if required by State, County, and Federal regulation.

An animal that is held at a temporary holding facility through the night is defined as a horse/burro feed day. An animal that is held for only a portion of a day and is shipped or released does not constitute a feed day.

8. It is the responsibility of the Contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.

9. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI will determine if animals must be euthanized and provide for the destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.

10. Animals shall be transported to their final destination from temporary holding facilities as quickly as possible after capture unless prior approval is granted by the COR for unusual circumstances. Animals to be released back into the HMA following gather operations may be held up to 21 days or as directed by the COR. Animals shall not be held in traps and/or temporary holding facilities on days when there is no work being conducted except as specified by the COR. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the COR. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours in any 24 hour period. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination will be at the discretion of the COR/PI or Field Office horse specialist.

B. Capture Methods That May Be Used in the Performance of a Gather

1. Capture attempts may be accomplished by utilizing bait (feed, water, mineral licks) to lure animals into a temporary trap. If this capture method is selected, the following applies:

- a. Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.
- b. All trigger and/or trip gate devices must be approved by the COR/PI prior to capture of animals.
- c. Traps shall be checked a minimum of once every 10 hours.

2. Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary trap. If the contractor selects this method the following applies:
 - a. A minimum of two saddle-horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one half hour.
 - b. The contractor shall assure that foals shall not be left behind, and orphaned.
3. Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor, with the approval of the COR/PI, selects this method the following applies:
 - a. Under no circumstances shall animals be tied down for more than one hour.
 - b. The contractor shall assure that foals shall not be left behind, or orphaned.
 - c. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.

C. Use of Motorized Equipment

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI, if requested, with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.
2. All motorized equipment, tractor-trailers, and stock trailers shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury.
3. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from trap site(s) to temporary holding facilities, and from temporary holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have at least two (2) partition gates providing at least three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing at least two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5 foot wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.
4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the

animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.

5. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping as much as possible during transport.

6. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers:

- 11 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer);
- 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer);
- 6 square feet per horse foal (.75 linear foot in an 8 foot wide trailer);
- 4 square feet per burro foal (.50 linear feet in an 8 foot wide trailer).

7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.

8. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed.

D. Safety and Communications

1. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the capture of wild horses utilizing a VHF/FM Transceiver or VHF/FM portable Two-Way radio. If communications are ineffective the government will take steps necessary to protect the welfare of the animals.

a. The proper operation, service and maintenance of all contractor furnished property is the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor furnished equipment which, in the opinion of the contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor will be notified in writing to furnish replacement personnel or equipment within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.

b. The Contractor shall obtain the necessary FCC licenses for the radio system

c. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.

2. Should the contractor choose to utilize a helicopter the following will apply:

- a. The Contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the Contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.
- b. Fueling operations shall not take place within 1,000 feet of animals.

E. Site Clearances

No personnel working at gather sites may excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage or otherwise alter or deface any archaeological resource located on public lands or Indian lands.

Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary surveys (archaeological, T&E, etc). All proposed site(s) must be inspected by a government archaeologist. Once archaeological survey has been conducted, the trap or temporary holding facility may be set up. Said surveys shall be arranged for by the COR, PI, or other BLM employees.

Gather sites and temporary holding facilities would not be constructed on wetlands or riparian zones.

F. Animal Characteristics and Behavior

Releases of wild horses would be near available water. If the area is new to them, a short-term adjustment period may be required while the wild horses become familiar with the new area.

G. Public Participation

Opportunities for public viewing (i.e. media, interested public) of gather operations will be made available to the extent possible; however, the primary considerations will be to protect the health, safety and welfare of the animals being gathered and the personnel involved. The public must adhere to guidance from the on-site BLM representative. It is BLM policy that the public will not be allowed to come into direct contact with wild horses or burros being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at anytime or for any reason during BLM operations.

H. Responsibility and Lines of Communication

Contracting Officer's Representative/Project Inspector

Shaney Rockefeller

Contracting Officer's Representative/Project Inspector

Gary McFadden

The Contracting Officer's Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. The Malheur Resource Area Assistant Field Manager and Field Manager will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, National Program Office, and BLM Holding Facility offices. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

All publicity, formal public contact and inquiries will be handled through the District Public Affairs Officer. This individual will be the primary contact and will coordinate with the COR/PI on any inquiries.

The COR will coordinate with the contractor and the BLM Corrals to ensure animals are being transported from the capture site in a safe and humane manner and are arriving in good condition.

The contract specifications require humane treatment and care of the animals during removal operations. These specifications are designed to minimize the risk of injury and death during and after capture of the animals. The specifications will be vigorously enforced.

Should the Contractor show negligence and/or not perform according to contract stipulations, he will be issued written instructions, stop work orders, or defaulted.

APPENDIX B

Standard Operating Procedures for Population-level Fertility Control Treatments

One-year liquid vaccine: The following implementation and monitoring requirements are part of the Proposed Action:

1. PZP vaccine would be administered through darting by trained BLM personnel or collaborating research partners only. For any darting operation, the designated personnel must have successfully completed a Nationally recognized wildlife darting course and who have documented and successful experience darting wildlife under field conditions.
2. Mares that have never been treated would receive 0.5 cc of PZP vaccine emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA) and loaded into darts at the time a decision has been made to dart a specific mare. Mares identified for re-treatment receive 0.5 cc of the PZP vaccine emulsified with 0.5 cc of Freund's Incomplete Adjuvant (FIA).
3. The liquid dose of PZP vaccine is administered using 1.0 cc Pneu-Darts with 1.5" barbless needles fired from either Dan Inject® or Pneu-Dart® capture gun.
4. Only designated darters would mix the vaccine/adjuvant and prepare the emulsion. Vaccine-adjuvant emulsion would be loaded into darts at the darting site and delivered by means of a capture gun.
5. Delivery of the vaccine would be by intramuscular injection into the left or right hip/gluteal muscles while the mare is standing still.
6. Safety for both humans and the horse is the foremost consideration in deciding to dart a mare. The Dan Inject® gun would not be used at ranges in excess of 30 m while the Pneu-Dart® capture gun would not be used over 50 m, and no attempt would be taken when other persons are within a 30-m radius of the target animal.
7. No attempts would be taken in high wind or when the horse is standing at an angle where the dart could miss the hip/gluteal region and hit the rib cage. The ideal is when the dart would strike the skin of the horse at a perfect 90° angle.
8. If a loaded dart is not used within two hours of the time of loading, the contents would be transferred to a new dart before attempting another horse. If the dart is not used before the end of the day, it would be stored under refrigeration and the contents transferred to another dart the next day. Refrigerated darts would not be used in the field.
9. No more than two people should be present at the time of a darting. The second person is responsible for locating fired darts. The second person should also be responsible for identifying the horse and keeping onlookers at a safe distance.
10. To the extent possible, all darting would be carried out in a discrete manner. However, if darting is to be done within view of non-participants or members of the public, an explanation of the nature of the project would be carried out either immediately before or after the darting.

11. Attempts will be made to recover all darts. To the extent possible, all darts which are discharged and drop from the horse at the darting site would be recovered before another darting occurs. In exceptional situations, the site of a lost dart may be noted and marked, and recovery efforts made at a later time. All discharged darts would be examined after recovery in order to determine if the charge fired and the plunger fully expelled the vaccine.

12. All mares targeted for treatment will be clearly identifiable through photographs to enable researchers and HMA managers to positively identify the animals during the research project and at the time of removal during subsequent gathers.

13. Personnel conducting darting operations should be equipped with a two-way radio or cell phone to provide a communications link with the Project Veterinarian for advice and/or assistance. In the event of a veterinary emergency, darting personnel would immediately contact the Project Veterinarian, providing all available information concerning the nature and location of the incident.

14. In the event that a dart strikes a bone or imbeds in soft tissue and does not dislodge, the darter would follow the affected horse until the dart falls out or the horse can no longer be found. The darter would be responsible for daily observation of the horse until the situation is resolved.

22-month time-release pelleted vaccine: The following implementation and monitoring requirements are part of the Proposed Action:

1. PZP vaccine would be administered only by trained BLM personnel or collaborating research partners.

2. The fertility control drug is administered with two separate injections: (1) a liquid dose of PZP is administered using an 18-gauge needle primarily by hand injection; (2) the pellets are preloaded into a 14-gauge needle. These are delivered using a modified syringe and jabstick to inject the pellets into the gluteal muscles of the mares being returned to the range. The pellets are designed to release PZP over time similar to a time-release cold capsule.

3. Delivery of the vaccine would be by intramuscular injection into the gluteal muscles while the mare is restrained in a working chute. The primer would consist of 0.5 cc of liquid PZP emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA). The pellets would be loaded into the jabstick for the second injection. With each injection, the liquid or pellets would be injected into the left hind quarters of the mare, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).

4. In the future, the vaccine may be administered remotely using an approved long range darting protocol and delivery system if or when that technology is developed.

5. All treated mares will be freeze-marked on the hip or neck HMA managers to positively identify the animals during the research project and at the time of removal during subsequent gathers.

Monitoring and Tracking of Treatments:

1. At a minimum, estimation of population growth rates using helicopter or fixed-wing surveys will be conducted before any subsequent gather. During these surveys it is not necessary to identify which foals were born to which mares; only an estimate of population growth is needed (i.e. # of foals to # of adults).

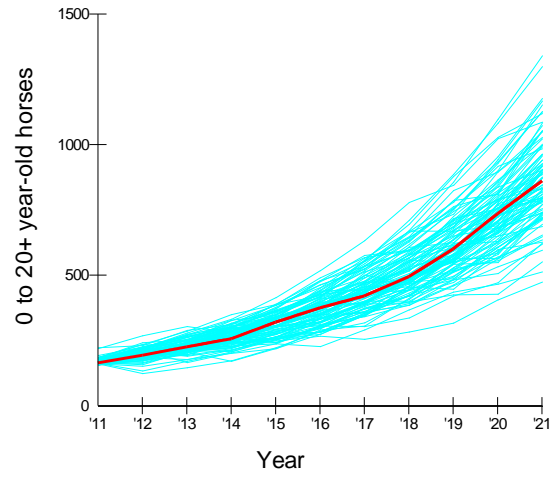
2. Population growth rates of herds selected for intensive monitoring will be estimated every year post-treatment using helicopter or fixed-wing surveys. During these surveys it is not necessary to identify which foals were born to which mares, only an estimate of population growth is needed (i.e. # of foals to # of adults). If, during routine HMA field monitoring (on-the-ground), data describing mare to foal ratios can be collected, these data should also be shared with the NPO for possible analysis by the USGS.
3. A PZP Application Data sheet will be used by field applicators to record all pertinent data relating to identification of the mare (including photographs if mares are not freeze-marked) and date of treatment. Each applicator will submit a PZP Application Report and accompanying narrative and data sheets will be forwarded to the NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the field office.
4. A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by HMA, field office, and State along with the freeze-mark(s) applied by HMA and date.

APPENDIX C

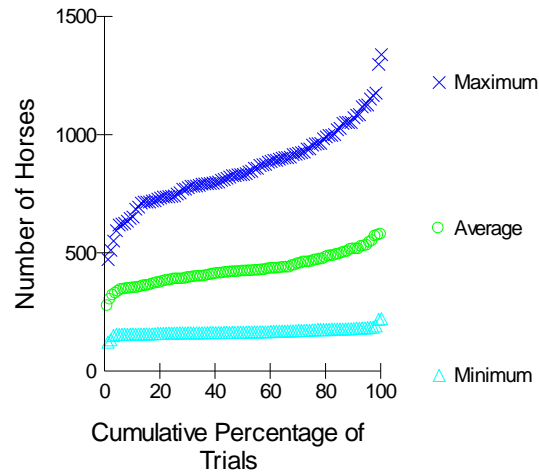
Population Modeling

Jackies Butte HMA – No Action

Most Typical Trial



0 to 20+ year-old horses



Population Sizes in 11 Years*

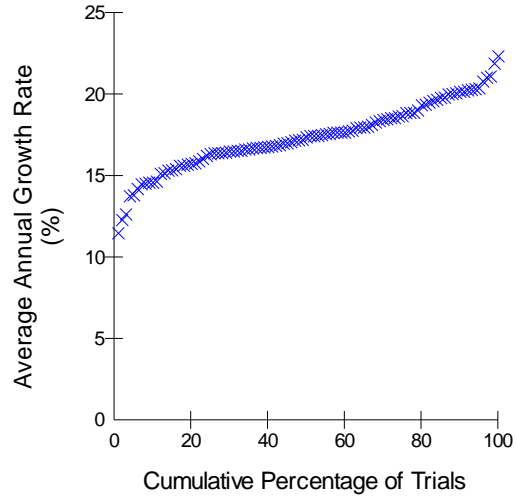
	Minimum	Average	Maximum
Lowest Trial	125	276	475
10th Percentile	159	351	672
25th Percentile	163	388	748
Median Trial	167	422	837
75th Percentile	177	465	962
90th Percentile	183	516	1080
Highest Trial	224	578	1342

* 0 to 20+ year-old horses

Jackies Butte HMA – No Action (cont.)

Explanation:

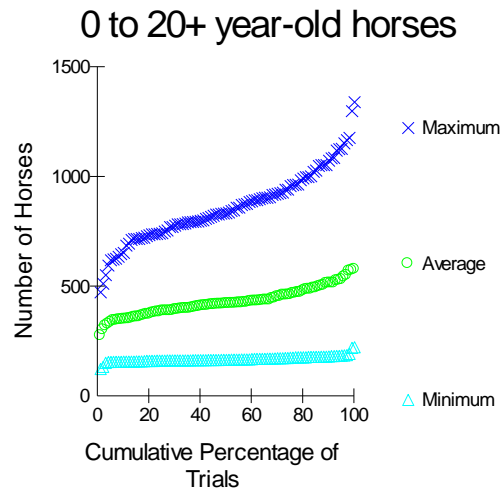
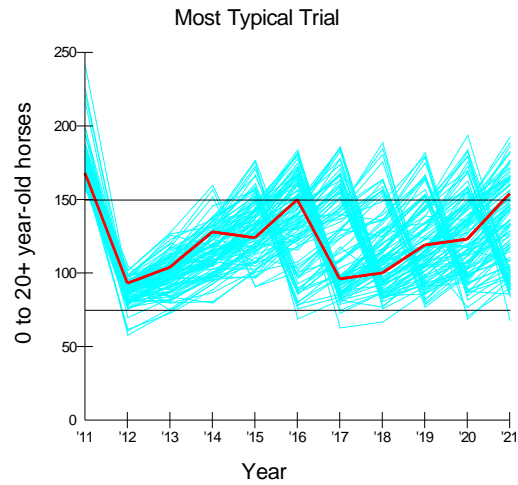
In 11 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 125 and the highest was 1342. In half the trials, the minimum population size in 11 years was less than 16 and the maximum was less than 837. The average population size across 11 years ranged from 276 to 578.



Average Growth Rate in 10 Years

Lowest Trial	11.5
10th Percentile	14.6
25th Percentile	16.4
Median Trial	17.4
75th Percentile	18.8
90th Percentile	20.2
Highest Trial	22.4

Jackies Butte HMA – Removal Only



Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	58	109	160
10th Percentile	74	115	166
25th Percentile	78	120	170
Median Trial	82	124	178
75th Percentile	87	127	183
90th Percentile	92	130	191
Highest Trial	95	135	241

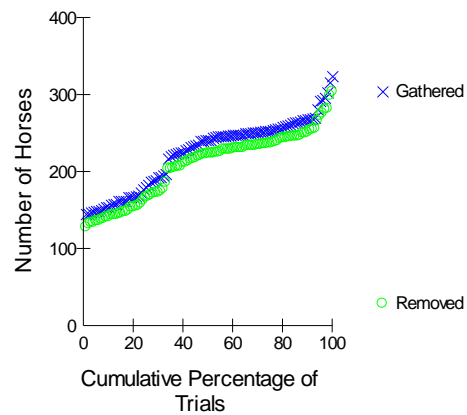
* 0 to 20+ year-old horses

Explanation:

In 11 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 58 and the highest was 241. In half the trials, the minimum population size in 11 years was less than 82 and the maximum was less than 178. The average population size across 11 years ranged from 109 to 135.

Jackies Butte HMA – Removal Only (cont.)

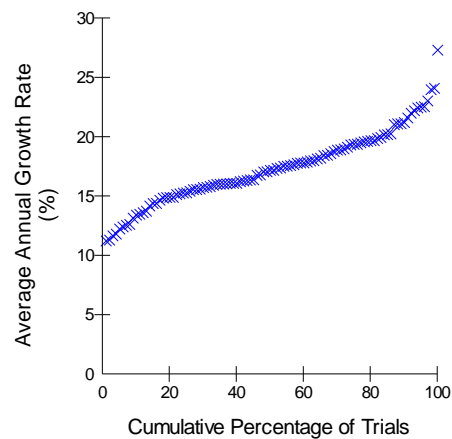
0 to 20+ year-old horses



Totals in 11 Years*

	Gathered	Removed
Lowest Trial	145	128
10th Percentile	156	142
25th Percentile	182	168
Median Trial	241	224
75th Percentile	254	238
90th Percentile	268	252
Highest Trial	324	304

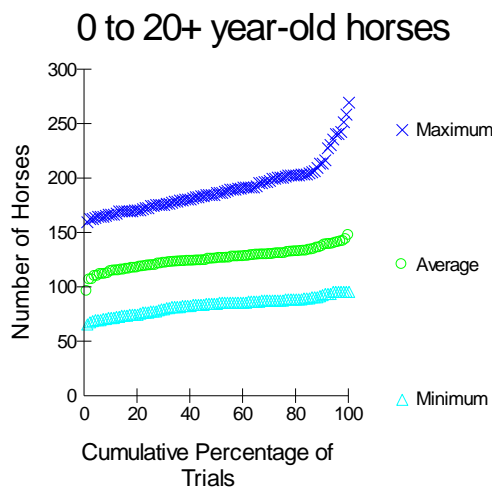
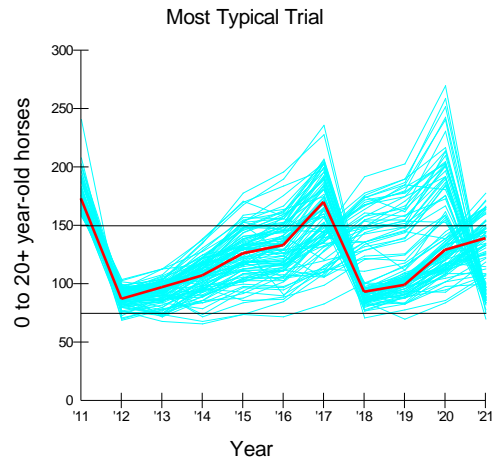
* 0 to 20+ year-old horses



Average Growth Rate in 10 Years

Lowest Trial	11.3
10th Percentile	13.5
25th Percentile	15.4
Median Trial	17.2
75th Percentile	19.4
90th Percentile	21.4
Highest Trial	27.3

Jackies Butte HMA – Removal and Fertility Control and Removal with Fertility Control and Sex Ratio Skew



Population Sizes in 11 Years*

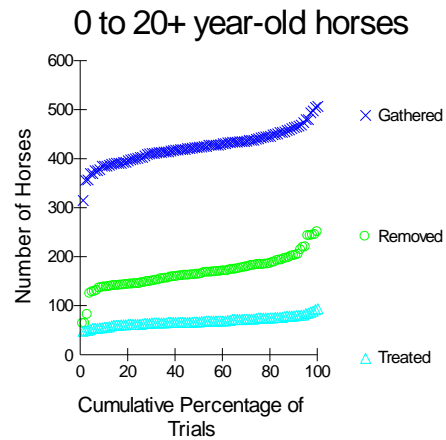
	Minimum	Average	Maximum
Lowest Trial	66	96	160
10th Percentile	72	115	167
25th Percentile	78	120	175
Median Trial	86	126	187
75th Percentile	88	131	202
90th Percentile	94	138	216
Highest Trial	96	148	270

* 0 to 20+ year-old horses

Explanation:

In 11 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 66 and the highest was 270. In half the trials, the minimum population size in 11 years was less than 86 and the maximum was less than 187. The average population size across 11 years ranged from 96 to 148.

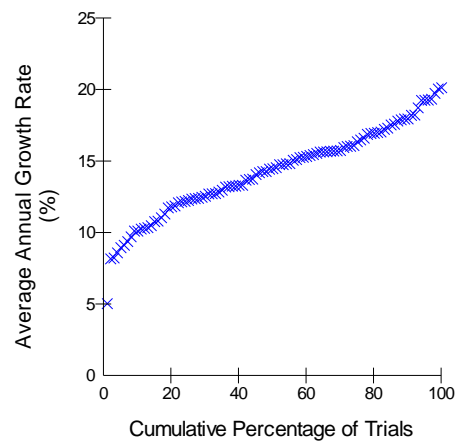
Jackies Butte HMA – Removal and Fertility Control and Removal with Fertility Control and Sex Ratio Skew (cont.)



Totals in 11 Years*

	Gathered	Removed	Treated
Lowest Trial	316	64	49
10th Percentile	386	138	57
25th Percentile	404	146	64
Median Trial	425	164	68
75th Percentile	443	184	76
90th Percentile	466	202	80
Highest Trial	508	251	95

* 0 to 20+ year-old horses

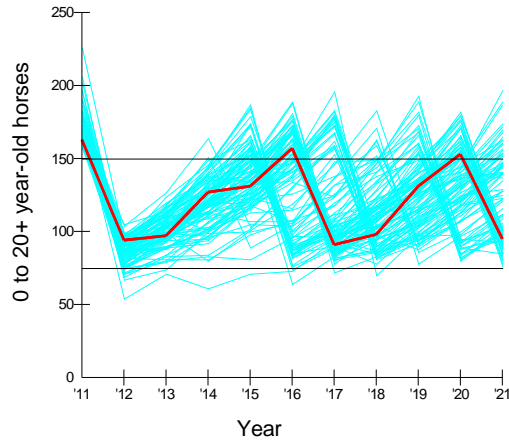


Average Growth Rate in 10 Years

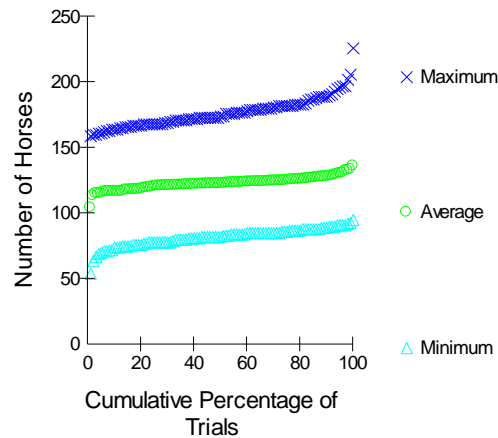
Lowest Trial	5.1
10th Percentile	10.2
25th Percentile	12.3
Median Trial	14.5
75th Percentile	16.5
90th Percentile	18.1
Highest Trial	20.2

Jackies Butte HMA – Removal and Sex Ratio Skew

Most Typical Trial



0 to 20+ year-old horses



Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	54	104	159
10th Percentile	74	117	164
25th Percentile	78	121	168
Median Trial	82	123	174
75th Percentile	86	125	182
90th Percentile	90	128	190
Highest Trial	95	136	226

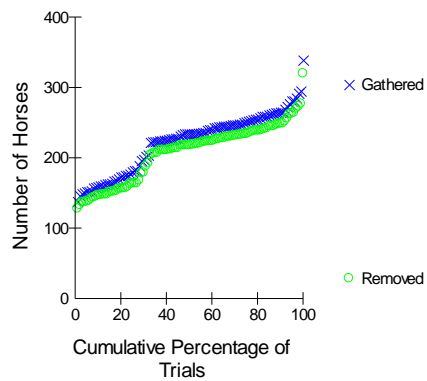
* 0 to 20+ year-old horses

Explanation:

In 11 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 54 and the highest was 226. In half the trials, the minimum population size in 11 years was less than 82 and the maximum was less than 174. The average population size across 11 years ranged from 104 to 136.

Jackies Butte HMA – Removal and Sex Ratio Skew (cont.)

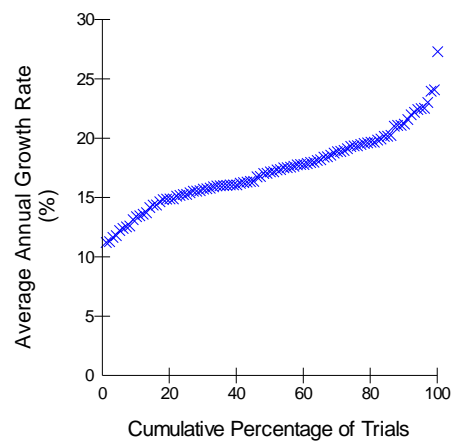
0 to 20+ year-old horses



Totals in 11 Years*

	Gathered	Removed
Lowest Trial	138	128
10th Percentile	160	147
25th Percentile	181	164
Median Trial	234	218
75th Percentile	252	234
90th Percentile	265	249
Highest Trial	339	320

* 0 to 20+ year-old horses



Average Growth Rate in 10 Years

Lowest Trial	10.1
10th Percentile	14.1
25th Percentile	15.6
Median Trial	17.5
75th Percentile	19.6
90th Percentile	21.2
Highest Trial	26.4

